

**JPRS 75528**

**18 April 1980**

# **Worldwide Report**

**ENVIRONMENTAL QUALITY**

**No. 249**



**FOREIGN BROADCAST INFORMATION SERVICE**

## NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [ ] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

## PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal name, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

18 April 1980

# WORLDWIDE REPORT ENVIRONMENTAL QUALITY

No. 249

## CONTENTS

PAGE

### WORLDWIDE AFFAIRS

#### Briefs

CEMA Environment Protocol	1
WHO Environmental Training	1

### ASIA

#### AUSTRALIA

#### Briefs

Murray River Desalinization	2
New South Wales Pollution Studies	2
Paramatta River Pollution	2
Cockburn Sound Problems	2

#### PEOPLE'S REPUBLIC OF CHINA

Uniform Analytical Method of Pollution Control Studied (Huang Deji; GUANGMING RIBAO, 29 Feb 80) .....	4
Environmental Problems Call for Immediate Attention (Xie Huaiji, Zhang Zhenyong; RENMIN RIBAO, 31 Jan 80).	6
Pollution Control Launched in Bohai, Yellow Sea (Xu Shangwu; GUANGMING RIBAO, 29 Feb 80) .....	9
Polluters in Huangshi City Heavily Fined (Xiao Zhibua; GUANGMING RIBAO, 29 Feb 80) .....	11
Briefs	
Shanghai Environmental Protection Meeting	12
Shanghai Environmental Protection	12

## CONTENTS (Continued)

Zhejiang Environmental Protection	12
Noise Damage in Hangzhou	13
THAILAND	
Ayuthaya Distillery Found To Be Source of Pollution (BAN MUANG, 6 Mar 80) .....	14
Forestry Chief Outlines Afforestation Plans, Protective Measures (BAN MUANG, 26 Feb 80) .....	16
EAST EUROPE	
INTERNATIONAL AFFAIRS	
Briefs	
CEMA Environmental Symposium	18
NEAR EAST AND NORTH AFRICA	
SYRIA	
Environmental Pollution Problems Discussed (AL-BA'TH, 11, 18 Feb 80) .....	19
Water Pollution, by Sati'a Mahali	
Air Pollution, Marwan al-Saqqal Interview	
SUB-SAHARAN AFRICA	
INTER-AFRICAN AFFAIRS	
Conference Cites Water, Development Needs (DEMAIN L'AFRIQUE, 25 Feb 80) .....	33
ETHIOPIA	
Food, Clothing Distributed to Drought-Affected People (THE ETHIOPIAN HERALD, 18 Mar 80) .....	43
USSR	
Briefs	
Earthquake in Nakhichevan ASSR	44
Earthquake in South Kirgiziya	44
Anticyclone Downs Leningrad Power Lines	44

CONTENTS (Continued)

WESTERN EUROPE

DENMARK

Tree Nursery Describes Efforts for Greenland Forestation  
(Jorgen Fleischer; GRONLANDSPOSTEN, 14 Feb 80) ..... 45

Cadmium, Mercury From Fish, Game Harms Greenlanders  
(LAND OG FOLK, 22 Feb 80) ..... 48

FEDERAL REPUBLIC OF GERMANY

Conference Held on Dangers of Asbestos  
(Edeltraud Rimmel; VORWAERTS, 13 Mar 80) ..... 50



## WORLDWIDE AFFAIRS

### BRIEFS

**CEMA ENVIRONMENT PROTOCOL**--The heads of the delegations to the sixth meeting of the Council on Economic Mutual Assistance [CEMA] plenipotentiaries for environment protection last night in Havana signed a protocol that provides for a scientific and technical cooperation program in that area for the next 5-year period. Delegations from Bulgaria, Hungary, the GDR, Poland, the Soviet Union, Czechoslovakia and Cuba were present. [Text] [FL051651 Havana Domestic Service in Spanish 1600 GMT 5 Apr 80 FL]

**WHO ENVIRONMENTAL TRAINING** --Seoul, March 7--The World Health Organisation (WHO) has agreed to send about 20 South Korean environmentalists to Europe, Japan and the United States on training courses as part of its efforts to support the environmental protection in South Korea. The agreement was made between South Korean administrator of the Office of Environment Pak Sung-kyu and Hiroshi Nakajima, visiting secretary general of the WHO, Pacific region, when they meet here today to discuss issues concerning the preservation of environment and technical co-operation. The WHO will also give South Korea a sum of 500,000 dollars from the International Development Fund to be used for environmental protection and send two environmental experts to help deal with preservation measures such as waste water disposal. [Text] [Seoul HAPTONG in English 0816 GMT 7 Mar 80 SK]

CSO: 5000

## AUSTRALIA

### BRIEFS

MURRAY RIVER DESALINIZATION--Victoria is winning the battle to "de-salt" the River Murray, according to the State Government. The Minister for Water Supply, Mr. Granter, said 61,000 tonnes of salt could be channelled away from the river in a dry year. He said salinity levels in the Murray were being "significantly reduced". [Text] [Melbourne THE AGE in English 18 Feb 80 p 13]

NEW SOUTH WALES POLLUTION STUDIES--The NSW Leader of the Opposition, Mr Mason, has appointed a special committee to investigate problems arising from the pollution of Sydney's beaches. Mr Mason said yesterday the Opposition was concerned about public health and that there had been "serious allegations that planned deep water sewerage outfalls would not be adequate." The committee includes Mrs Rosemary Foot (Lib, Vaucluse), and Mr Max Smith (Lib, Pittwater) whose electorates are affected. [Text] [Sydney THE SYDNEY MORNING HERALD in English 22 Feb 80 p 3] Sydney.--The New South Wales Government yesterday announced environmental research grants of \$56,151, half of which will go to air pollution and motor vehicle emission studies. The Planning and Environment Minister, Mr Landa, said 14 research projects would be funded by the grants. [Text] [Brisbane THE COURIER-MAIL in English 27 Feb 80 p 11]

PARAMATTA RIVER POLLUTION--Sydney.--Legal actions will be taken against a detergent manufacturer after the death of hundreds of fish in Sydney's Parramatta River last weekend. The State Environment Minister, Mr Landa, said the State Pollution Control Commission believed 1600 litres of detergent concentrate was discharged into the river. [Text] [Brisbane THE COURIER-MAIL in English 15 Feb 80 p 8]

COCKBURN SOUND PROBLEMS--The Cockburn city planner, Mr J. K. Bailey, is worried over action to be taken to alleviate the pollution problems in Cockburn Sound. In a report to the council on the recent Cockburn Sound environmental study he has suggested that the Director of Conservation and Environment, Mr Colin Porter, be invited to Cockburn to explain how the eight key recommendations from the report are to be implemented. Mr Bailey said that while the study was important and beneficial because it established beyond doubt that damage had been done to the Sound, an assurance was now needed that remedial action would be taken. The authority responsible for this was the Environmental Protection Authority,

which was advised by the 16-member Conservation and Environmental Council. The council might consider that Cockburn Sound pollution was a big but specific problem which should be the responsibility of a committee or authority with specific interest in the Sound. He doubted that any State government would be willing to set up another statutory authority to exercise control over the development of Cockburn Sound as a port and naval base. [Excerpt] [Perth THE WEST AUSTRALIAN in English 18 Feb 80 p 38] The 12 most common edible fish in Cockburn Sound have been given a clean bill of health from heavy-metal contamination. The species checked were mature sea and yellow-eye mullet, Australian herring, King George and yellow-finned whiting, cobbler, sea garfish, tailer, rock flathead, small-toothed flounder, skipjack trevally and six-lined trumpeter. The checks covered the nine most abundant metals discharged into the Sound--cadmium, zinc, lead, iron, copper, manganese, nickel, chromium and cobalt. The researchers said that the low concentrations found in the flesh of the 12 species examined contrasted markedly with the rate at which metals were discharged and accumulated in Cockburn Sound. [Excerpts] [Perth THE WEST AUSTRALIAN in English 27 Feb 80 p 5]

CSO: 5000



UNIFORM ANALYTICAL METHOD OF POLLUTION CONTROL STUDIED

Beijing GUANGMING RIABO in Chinese 29 Feb 80 p 2

[Article by Huang Deji [7806 1795 3444]: "New Gains in Studies To Standardize Analytical Methods in Environmental Pollution"]

[Text] The Chinese Academy of Sciences and related institutions of higher learning, as well as units concerned with environmental protection, agriculture and forestry, and public health, have been studying the standardization of analytical methods in environmental pollution. Their studies have brought new results.

These studies constitute a basic undertaking for environmental protection. The management, scientific study, surveillance and quality evaluation of the environment, as well as the control of environmental pollution, should have a standardized method in order to arrive at a uniform yardstick for the sake of comparison and arbitration. In the past, due to lack of a uniform analytical method, the same kind of sample analyzed by different units produced discrepancies in the results so wide that they could not be relied upon or utilized.

This kind of work was included in the national planning program in 1977. After more than a year's effort, the Institute of Environmental Chemistry of the Academy of Sciences and the Nanking Soil Institute completed 90 analytical and testing methods for more than 10 commonly-seen pollutants, including copper, lead, zinc, cadmium, mercury, chromium, arsenic, cyanide, fluorine, sulphur, phenol, benzene, trichloroacetaldehyde, mineral oils, 666, and DDT. These analytical and testing methods have been promoted for trial use and welcomed in general. These methods will be presented in book form and published by the Scientific Publishing House.

Later on, under a combined effort of the Institute of Environmental Chemistry of the Academy of Sciences, Nanking Soil Institute, Changchun Institute of Marine Biology, Institute of Forestry Soil, Shanghai Institute of Entomology and Peking Municipality Environmental Surveillance Station, 110 testing methods for more than 30 elements were completed within a matter of 6 months, including heavy metals, positive ions, organic matter, and water quality

combined index. The manuscript for these testing methods will be printed for trial use and, after receiving comments from various sources, will be published officially.

The above two analytical methods proceeded from the actual situation of environmental protection in our country, by considering the existing analytical surveillance and testing conditions and technological level. First of all, we pay direct attention to the vast amounts of pollutants and at the same time absorb the analytical and testing methods in operation in relatively advanced foreign countries. Then we try to improve these methods and finally adopt widely those found sensitive, accurate, reliable, simple and not time-consuming.

At first only a little over 100 persons representing more than 40 units took part in this kind of work, but later the figure increased to nearly 600 persons from more than 80 units. Consequently, these gains represent the crystallization of socialist collaboration. The promotion of this work has vigorously improved environmental surveillance work and enhanced the academic level of environmental analytical chemistry. On the basis of these results, combined with the current analytical methods of the environmental surveillance station, we have written our "Standardization of Analytical Methods for Environmental Surveillance (Draft)."

9300

CSO: 5000

ENVIRONMENTAL PROBLEMS CALL FOR IMMEDIATE ATTENTION

Beijing RENMIN RIBAO in Chinese 31 Jan 80 p 6

[Letter from LIAONING RIBAO reporter Xie Huaiji [6200 2037 1010] and RENMIN RIBAO reporter Zhang Zhenyong [1728 2182 6978]: "Environmental Protection Is an Immediate and Urgent Task"]

[Text] Recently, the China Environmental Science Society organized the first term of the training class of leading cadres for national environmental protection in Jin County, Liaoning. During that period, this reporter interviewed leading comrades and experts of the environmental protection department. They all recognize the fact that in order to carry out the work of environmental protection well, we must urgently seek solutions at this time to the following problems:

1. Systems and organizations must adapt themselves to work requirements. The environmental protection department is a collective department which bears the arduous responsibility of organizing and motivating each and every trade to develop environmental protection work as well as popularizing scientific scientific techniques of environmental protection. Environmental protection departments abroad are all directly under the jurisdiction of cabinets. The departmental heads participate in cabinet meetings and share in the formulation of national plans. The Staff Office for Environmental Protection in our country is affiliated with the State Capital Construction Commission. The Staff Office for Environmental Protection of every province and municipality is merely a division of the Provincial Construction Commission. With such a system, environmental protection organizations have no niche in the government, cannot share in discussion of national economic plans, lack the means to exercise their authority in fulfilling the duties of environmental protection, and lack the power to restrain some departmental commissions. Therefore, environmental experts have suggested that the State Council establish an environmental protection commission and that each province and municipality establish a corresponding organization to participate directly in the formulation of national economic plans. This would allow our country to form a complete environmental management system from top to bottom which would truly have the function and authority to supervise and motivate the environmental work of every battlefield of our country.

2. We ought to substantiate and strengthen cadre ranks for environmental protection. Environmental protection work, highly technical in nature and broad in range of knowledge, requires people who have a specific educational and technological level to carry it out. At present, in some areas, however, elderly and feeble cadres, ignorant of official matters or even basically incapable of working, are "taken care of" by being let to "retire" in the Environmental Protection Department. Such ranks are very unsuitable for the present situation of environmental protection work. Therefore, they [the leading comrades and experts of the field] suggested nominating cadres who have a correct ideological line, understand official matters, possess drive, and are enthusiastic about environmental protection work to staff the Environmental Protection Department and to effectively develop environmental protection work.

3. We ought to greatly strengthen the cultivation and training of scientific and technical personnel. Aside from organizing various kinds of training classes to train environmental protection cadres on the job, we should also establish high-level and middle-level vocational institutes for environmental protection or specialized study groups to nurture environmental protection specialists. We should set up environmental protection scientific research organizations at every level and environmental protection monitoring stations to serve as numerous bases for providing essential information on containing pollution and developing environmental protection work. In addition, we also hope to take advantage of all types of propaganda media--such as newspapers, magazines, television, radio stations, etc.--to disseminate scientific knowledge about environmental protection among the broad masses of cadres and people.

4. Environmental protection plans, expenditures, and material provisions should be guaranteed. Otherwise, pollution control will remain empty talk.

5. Environmental protection work ought to have a long-term plan. At present, many areas and departments lack understanding of local environmental conditions and the serious nature of pollution, and many new projects have failed to follow the "Santongshi" [0005 0681 2514] ("principles of carrying out the three tasks simultaneously") and additional pollution has been created. In order to treat pollution at its roots and to proceed step by step with scientific, planned, comprehensive management of the environment, we should greatly strengthen the groundwork of environmental protection, carry out well the inspection and appraisal of the environment of local areas and local departments and, grasping the basic data, offer feasible and practicable guidelines for the development of environmental protection work in the local areas, and from there proceed to formulate immediate and long-term plans for environmental protection work.

To solve the above-mentioned problems, the most basic step is to heighten awareness of the importance of environmental protection work among leading cadres at every level. In the minds of some leading cadres, there is only the concept of production and no concept of ecology. Placing production and environmental protection work in opposition to one another, these cadres only

account for their factory output and do not account for the loss brought to society. They would rather hand over several million yuan every year in pollution compensation payments than to attend to the environmental protection projects. In the past, owing to our ignorance of environmental science, we took the road of developing production first and curbing pollution second, and caused serious pollution problems and suffered the punishment of nature. With our country's in-depth development of the four modernizations, if they still do not arouse sufficient attention, pollution problems from here on will become even more striking and the damage left behind will be limitless. In the spirit of high responsibility toward the party and the people, leaders at every level must take environmental protection work as a serious matter, and truly and thoroughly implement the environmental protection law.

9519

CSO: 5000



PEOPLE'S REPUBLIC OF CHINA

POLLUTION CONTROL LAUNCHED IN BOHAI, YELLOW SEA

Beijing GUANGMING RIBAO in Chinese 29 Feb 80 p 2

[Article by Xu Shangwu [1776 1424 2976]: "Initial Results in Control of Pollution in Bohai, Yellow Seas"]

[Text] Our country's vigorous launching of pollution control in the Bohai and Yellow Seas has seen initial results with regard to the handling of petroleum and heavy metal pollution.

The Bohai and Yellow seas are China's two sea regions, adjoining five provinces and municipalities in Liaoning, Shandong, Hebei, Jiangsu and Tianjin. As numerous factories, harbors and oilfields are to be found along the coasts, as well as vessels, which discharge large quantities of untreated, filthy water into the sea, the seawater has become polluted with petroleum and heavy metals. Moreover, the Bohai is a semiclosed inland sea with sluggish water circulation and therefore its pollution problem has become more noticeable.

In 1977 the State Council convened a special conference to control sea pollution and formally set up a guiding committee to safeguard the Bohai and Yellow Sea region. During the past 2 years, this committee has organized all related units of the State Council together with provinces and municipalities situated along the sea to massively launch the work of controlling the pollution of the Bohai and Yellow seas.

First, the committee assigned the Institute of Oceanography to undertake a large-scale investigation of pollution in the southern part of the Yellow Sea, pinpointed the main sources and conditions of pollution in the Bohai and Yellow Seas and presented scientific data in order to adopt effective measures for pollution control.

In the prevention against pollution, the body seized upon engineering to control the sources of pollution. During the past 2 years, our government has set up more than 200 items of harness engineering projects along the coastlines of the Bohai and Yellow seas, and up till the end of last year, more than half of them were completed and in operation, which played an

important role in reducing pollution there. The Shengli, Dagang and Yunhe oilfields of the Ministry of Petroleum and the Offshore Petroleum Administration have constructed 17 water treatment stations, so that the rate of treatment of oil-polluted water reached more than 90 percent. Moreover, they vigorously expanded measures for recycling filthy water, so that the recycling rate increased to more than 50 percent. Five plants of Jinxi Petroleum mustered forces, reformed their administration and channeled the flow separately between clean and dirty water, and at the same time installed various equipment to treat oil separation, float selection, gas evaporation and sand filtration. A total of more than 20,000 tons of dirty oil was recovered in 12 months last year.

Apart from constructing engineering works, the organization also strengthened its management of enterprises and greatly reduced the abnormal discharge of environmental pollution. For example, six factories in Jinzhou devised a system of rewards and penalties concerning the recycling of dirty oil, which kindled the workers' initiative. These workers used small oil barrels and small sumps to collect more than 800 tons of discarded oil last year alone. The Ministry of Communications tightened its control over the pollution discharged by vessels. In the harbors of Dalian, Qinghuangdao and Qingdao, garbage collection and water treatment centers were built, and within 2 years more than 38,000 tons of dirty oil were collected, while a revenue of more than 30,000 yuan in treatment fees was received.

In addition, the control of pollution from mercury, chromium, cadmium, lead and other heavy metals was also conducted. During the past 2 years, the Jinxi Petrochemical Plant, Jinzhou Iron Alloy Works, Huhudao Zinc Factory and other units have strengthened their respective management, reformed their production technology and reduced their pollution discharge with commensurate results. The Jinxi Petrochemical Plant also improved the production technology in its electric welding shop, thereby reducing the discharge of metallic mercury by 10 tons a year and clearly lowering the amount of mercury content in the water of Jinzhou Bay. In promoting pollution-free technology for cyanogen-less electro-plating, mercury-less instrument and meter making, electric paint spraying, fermentation-method leather tanning and paper manufacturing, factories in Liaoning, Tianjin, Hebei, Shandong and Jiangsu have achieved a certain measure of success.

In order to effectively master the environmental conditions of the sea, 145 survey and surveillance stations were set up along the Bohai and Yellow seas, with the Oceanic Environmental Protection Research Institute of the National Bureau of Oceanography as operational base. A network of surveillance was formed, and engaged in regular surveying work. At the same time, the Ministry of Health, Central Bureau of Water Production, Bureau of Oceanography and the Academy of Sciences, together with related environmental protection agencies in various provinces and municipalities, unfolded research concerning the effect of sea pollution on human health, the sources of water production and self-purification capacity of seawater. These subjects have achieved varying degrees of progress and served as a scientific basis for the combined control of sea pollution.

POLLUTERS IN HUANGSHI CITY HEAVILY FINED

Beijing GUANGMING RIBAO in Chinese 29 Feb 80 p 2

[Article by Xiao Zhibua [5618 1807 5478]: "Huangshi City Collects Fines From Serious Polluters"]

[Text] Huangshi City, a newly-developed heavy industrial city in Hubei Province, is firmly carrying out the national environmental protection law. Since January this year, the city has been collecting monthly fines regularly from 31 industrial enterprises which discharged "three pollutants" in quantities exceeding the nationally-required standard for a long period of time.

This is Huangshi City's mode of action: Measure the pollutants discharged, whether they exceed the national requirement or not, using the surveillance and test result of the environmental protection and surveillance agency as basis. Measure also the discharged pollutants' quantity and concentration, using as a criterion the total pre-determined amounts of the pollutants produced in shops, factories or mines. If an enterprise, which has been paying fines, is found earnestly controlling pollution and to have reduced or eliminated pollution discharge as attested by the city's environmental protection unit, the fine will be reduced or waived accordingly. Those enterprises which do not have the technological knowledge to control pollution to within the permissible government standard, are still liable to a 50 percent fine, although they have the necessary equipment to control the "three pollutants" and are doing their best in operational management. Others who fail to make every effort in controlling pollution will have to pay double their basic fines every year, until they succeed in controlling the pollution to within the government requirement. The city's environmental protection department is responsible for informing the guilty enterprise the amount of the fine to be levied each month, with a copy sent to the People's Bank, and the party concerned is obliged to pay the fine at the bank direct. If no payment is made on due date, the bank is responsible for collecting it. The total amount of pollution fines collected by Huangshi City is not forwarded to the higher-ups, but is kept in a special account at the bank to be earmarked for special purposes as occasion arises, such as the planning and management of sewage, and particularly the control of pollution and other pests in public environment.

Since the implementation of collection of fines from serious polluters, Huangshi City has been vigorously pushing the control of the "three pollutants."

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

SHANGHAI ENVIRONMENTAL PROTECTION MEETING--On the morning of 7 March, the Shanghai Municipal People's Government held a discussion meeting on environmental protection. The participants included those persons in charge of environmental protection work in various districts, countries and municipal bureaus. According to the participants, environmental pollution is still very serious in Shanghai. They called for proper disposal of industrial wastes. Vice Mayors Chen Jinhua and Yang Ti attended and addressed the meeting. [Shanghai City Service in Mandarin 1130 GMT 7 Mar 80 OW]

SHANGHAI ENVIRONMENTAL PROTECTION--Shanghai, 18 Mar--A number of monitoring instruments for environmental protection were recently developed in Shanghai. They include: A laser smog detecting radar [ji guang ce yan lei da 3423 0342 3261 3533 7191 6671] which can measure the relative density of smog and dust in the atmosphere within a radius of 3 kilometers; an automatic water source pollution detecting device; a volt-ampere instrument [shi bo shi cha fu an yi 4355 3134 4355 1567 0126 1344 0308] which can measure ultramicro quantities of heavy metal elements in soil, food items, blood and semiconductor materials; and a digital portable hydrogen sulfide analysis instrument, developed for use in underground sewer systems to protect workers from hydrogen sulfide poisoning. [Beijing Xinhua Domestic Service in Chinese 0220 GMT 18 Mar 80 OW]

ZHEJIANG ENVIRONMENTAL PROTECTION--The Zhejiang provincial leading group for environmental protection recently held an enlarged meeting. Zhai Xiwu, vice governor of Zhejiang and leader of the provincial leading group for environmental protection, presided over the meeting. The meeting pointed out that pollution remained a serious problem in Zhejiang Province. It decided to launch an "environmental protection propaganda month" campaign throughout the province and make efforts to prevent environmental pollution. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 19 Mar 80 OW]

NOISE DAMAGE IN HANGZHOU--According to a XINHUA NEWS AGENCY report datelined Hangzhou 24 February, the vigorous steps taken by a number of factories and industrial enterprises in Hangzhou Municipality to curb noise damage have brought initial results. Since the latter half of last year, related departments in Hangzhou Municipality have separately been measuring the noise level in factories with comparatively serious industrial noise, and those exceeding the national standard were asked to take preventive measures forthwith. Hangzhou Cigarette Factory has seven windblown puffs of smoke system and seven high-pressure centrifugal-type ventilators which cause a noisy chorus, disturbing the inhabitants living within a radius of 40 meters day and night. Later on, thanks to an analysis of the cause of the noise made by an engineer of the factory, mufflers were installed in all the seven ventilators, which speedily reduced the noise level to within the range of the nationally-required standard. [Text] [Beijing GUANGMING RIBAO in Chinese 29 Feb 80 p 2] 9300

CSO: 5000



## THAILAND

### AYUTHAYA DISTILLERY FOUND TO BE SOURCE OF POLLUTION

Bangkok BAN MUANG in Thai 6 Mar 80 pp 1, 2

[Article: "Distillery Releases Molasses Into the River, Killing Goby Fish Valued at 30 Million Baht"]

[Text] The Ayuthaya Distillery has released molasses into the Chao Phraya River, polluting the water. The fish in the region between Muang and Bang Pha In districts in Ayuthaya Province have all died. The people who raise goby fish in the river have all gone bankrupt because all their fish have died.

A BAN MUANG reporter has reported from Ayuthaya that, recently, the Ayuthaya Distillery, with Mr Somnuk Bunyawanthana the manager, located in Thawasukri commune, Muang district, Ayuthaya Province, on the banks of the Chao Phraya River, released molasses into the river, killing all the fish in the river between Muang and Bang Pha In districts, including the goby fish raised by people living on both sides of the river. This has caused losses totalling at least 20 to 30 million baht and this does not include the other fish in the river.

Because the distillery polluted the water this time, Mr Prakob Detdi, the provincial industrial officer, reported this to Mr Suchat Phuawilai, the provincial governor, and ordered that the release of molasses be stopped immediately. However, the distillery obstinately stated that the pond for storing waste water was full and that no more could be kept back. If it could not release waste water into the river, it would have to stop producing liquor and this would cut government revenues by 30 to 40 million baht per day.

Mr Sombun Chuttimathiphakorn, age 47, who lives at A133/7, Horattanachai commune, Muang district, Ayuthaya Province, and who makes a living by raising goby fish in the Chao Phraya

River and exporting them abroad, filed a complaint with Police First Lieutenant Saman Klutisin, the officer on duty at the Muang district, Ayuthaya Province, police station. He stated that the fish that he raised in baskets along the Chao Phraya River and that were valued at 500,000 baht had all died. He asked the authorities to order the Ayuthaya Distillery to stop releasing molasses into the river because all the people who raise goby fish were going bankrupt.

Goby fish are priced at at least 120 baht per kilogram and are raised for export to Japan where they are a very popular food. People who live along the banks of the Chao Phraya River therefore raise these fish in baskets. When the distillery pollutes the river, this causes much trouble for them.

11943

CSO: 50000

## THAILAND

### FORESTRY CHIEF OUTLINES AFFORESTATION PLANS, PROTECTIVE MEASURES

Bangkok BAN MUANG in Thai 26 Feb 80 p 6

[Article: "One Million Rai Per Year Will Be Afforested and Volunteer Units Will Be Established to Preserve and Protect the Forests"]

[Text] Mr Thanom Premratsami, the head of the Forestry Department, disclosed that the Forestry Department has established a volunteer program to protect the forests. It is asking the people in the rural areas to serve as volunteers to support the forestry officials who are already carrying out tasks. This experiment is being carried out in Nakhon Nakhon Province, the first province to do so, because large forest areas here have been destroyed. Three seminars have been held for approximately 200 people so they can serve as volunteers to help protect the forests and keep them from being destroyed. The tasks of this program will be expanded into other provinces that have forests or that have problems concerning the destruction of forests.

The Forestry Department has revised the laws and increased the penalties for people who destroy the forests. It has specially directed forestry officials to be more strict in maintaining and protecting the forests. This has caused a reduction in the illegal cutting of trees.

Besides maintaining and protecting the forests, the Forestry Department has urgently planted additional trees faster than before in order to compensate for the forest area that has been destroyed or put to beneficial use. This is being done because the present forest area is only about 125.5 million rai, which is below the minimum target of 128 million rai.

Thus, 1 million rai must be afforested each year for the next 3 to 4 years in order to hit the planned target. After the target has been hit, afforestation will continue in order to have additional forest areas. In particular, the planting of trees that grow quickly will be emphasized in order to use them for various purposes and to make charcoal.

11943

CSO: 5000

## INTERNATIONAL AFFAIRS

### BRIEFS

CEMA ENVIRONMENTAL SYMPOSIUM--Donetsk, as the center of a large industrial region producing each seventh ton of steel in the country, has now become a unique laboratory of advanced experience for the protection of nature. An international symposium of CEMA member countries and the SFRY on problems concerning the protection of the environment from harmful discharges of ferrous metallurgical enterprises ended in Donetsk on 14 March. The symposium adopted a protocol outlining the main guidelines for activities for the protection of the environment in the coming decades. [Kiev Domestic Service in Ukrainian 1800 GMT 14 Mar 80 AU]

CSO: 5000



ENVIRONMENTAL POLLUTION PROBLEMS DISCUSSED

Water Pollution

Damascus AL-BA'TH in Arabic 11 Feb 80 p 4

[Article by Dr Sati'a Mahali, Chief of the Syrian Geological Society: " The Barada and its Tributaries Ought Not to Remain Open Canals for Drainage of Polluted Water"]

[Text] Pursuant to a subject recently published in AL-BA'TH about waste water drainage and the Damascus sewerage system, the permanent continuation of the city's life depends on the continued operation of its vital public utilities. They should be immune from all adversity and crises which occur as a result of haphazard expansion or large, unnatural increases in the number of inhabitants, along with increased consumption.

Moreover, the reason for the city's existence and the life of its inhabitants is the availability of drinking water and water for domestic uses. The misfortune of losing water after its use and shortcomings derived from improper drainage causing injuries to the population are big problems which, if not overcome, could result in a health disaster and disruption of other vital facilities upon which communications, labor and mankind's progress depend.

Our country lies within the desert belt, marked by severe heat, scarce water and a lot of dust. Damascus, in general, is surrounded by barren mountains. The wind strips them of soil in dry times, and the rains carry this soil to the city in times of sudden downpours. It accumulates in violent torrents and, together with other moveable matter, is transported to the city's streets and roads, where it remains after the floods' intensity abates. It then changes into thick mud which cannot pass through the underground drainage holes, or the present system cannot cope with draining it.

Often these crises are repeated after every little gust of rain that promises to revive Damascus' al-Ghutah oasis or its pasture land. Telephone ground lines are put out of commission, public electric lights cut off, and low ground and roads are changed into muddy lakes, whose components are rain

water and those various desiments from all the organic and chemical residues, the filth and pollutants which are prejudicial to man's comfort, impede his progress, and spread to his clothing, his means of transport, and his home.

In the past, the city administration has relied on the Barada river and its tributaries for drainage of its polluted water, at times when it could not conceal the city's pollution and residues of chemical poisons and very badly polluted matter produced by modern industrial civilization.

The annual rainfall is slight in Damascus and falls in the short winter season. Its average does not exceed 223mm, but at its peak it sometimes rains in copious downpours which the small drainage ditches cannot handle, and the open channels become blocked by many obstacles. Because the downpours do not occur often enough or uniformly throughout the seasons of the year, there is nothing to help flush the waste products through the city sewers, which results in considerable blockage, in addition to damage and cave-ins in the streets, and other factors which disrupt the drainage flow.

It is well known that Damascus does not enjoy a modern system of sewage drainage. The general channels in it are not compatible with its distribution, capacity, and its technical specifications to handle the waste water.

The true, main system which does the job of draining the polluted water is the open, natural drainage system of the Barada river and its tributaries. This river and its branches are the drainage system for the polluted waters, and they are at the same time the principal sources of irrigation.

This is where the danger lurks; the same approximate thing also applies to the al-'Isa river. The danger is not only the injurious results stemming from pollution, such as illnesses which afflict people using polluted water, or smelling to noxious odors, or the absence of animal life in the water system. But it is also that pollution from the waterway seeps into the agricultural soil, that is, into the wells and general sources of ground water, in addition to the noxious residue which kills the soil's fertility and damages the crops.

Let us imagine the waste products of a large city whose population amounts to some 2 million inhabitants, and the waste products of a large number of villages with a population equal to that of the city, flowing into water channels carrying excrement, urine, and the rest of the fermentation matter existant in domestically used water, mixed with chemical cleaning materials, in addition to poisonous industrial water, composed of hard elements deposited, suspended or floating on the water's surface, aside from waste products of various minerals, oils, and other combustible materials, all of these materials winding up in the river's tributaries or irrigation ditches or in holes whose water seeps into the land. This is what is changing the waterway, which had given Damascus its beauty, cleanliness

and splendor, into ditches and excavations through which flows black water giving off the harshest odors and which all animal and plant life shun.

Hamburg, since the end of the last century, as reported in the magazine TEIT MAGATIN on July 12, 1979, has had an underground drainage system for polluted water and rain water, using a vast, efficient and long network of precise channels which resemble roofed roadways, paved on the sides and bottom with stones which could, were it not for the water in them, be underground roads for automobiles and a pedestrian walk. In fact cleaning personnel walk along this path, or are transported by rubber boats from canal to canal, whose ceilings are 3.5 meters high, or from canals to tunnels in which the canals meet. Their ceilings are up to 12 meters high. Some 35 km of these canals are underground, which is why rubber boats are used to pass through them.

Large cities are now discharging into sewerage systems vast floods of domestic and industrial waste water as well as rain water and its accompanying torrents of debris.

Despite that, Hamburg now complains about the insufficient capacity of these vast waterways for industrial, domestic and rain water. The events of the flood are being repeated in the city, especially as a result of the hard sediment in the channels. The method followed in cleaning the channels, by flushing sea water through, is no longer completely useful in assisting the canal cleaners to get rid of the deposits and blockages. The city found itself facing a pressing need to construct a new network to drain off the polluted water into the sea, using the Elbe river, accompanied in addition to complete capacity, by complete water treatment facilities for purification, thus ridding the channels of blockages, sediment and floods.

Work continues on supplying pure water suitable for city and agricultural uses, as well as for industry from sources which are not sources of drinking water. This is very important and vital in our country. The first step toward that is to protect the sources of this water from the major pollution which afflicts it and to prevent the pollution which passes through it from directly or indirectly, by means of soil, air or agricultural products, reaching the people.

Municipal authorities in our cities have in fact begun to implement the construction of some extensive, modern sewers in some of the new parts of these cities. However, to learn the conditions of the surrounding geographical environment, predict all coming contingencies and to take into account future probabilities are matters which ought not to be forgotten while planning and implementing.

Many western cities have found themselves able to dispense with carrying out new sewage system projects for the past 100 years, since the sewers which were

built in the latter part of the last century are now still operating properly, doing their job and carrying out their functions well.

Certainly the availability of chemical treatment for polluted drainage water and for polluted rivers, through implementation of proposals to construct water treatment stations, would rid the water purification stages of matter suspended throughout the network and the sedimentation basins. It would fill the water with oxygen, then sterilize and return the water to the main channels, clean and suitable for use. Implementation of a matter like this is not difficult in these times. There are practical studies regarding this subject, and the financial costs would not be very expensive in comparison with the beneficial result in which the people would be provided with clean water for all their various needs.

#### Air Pollution

Damascus AL-BA'TH in Arabic 18 Feb 80 pp 10-11

[Interview with Dr Marwan al-Saqqal, Chief of the Office of Research, Directorate General of Meteorology, by 'Abd al-Ra'uf al-Kafri: "Air Pollution; the Dust Covered Devil. A Specter Hovering Over Our Cities'Skies."]

[Text] Those who have concern for the welfare of the country will recall the sincere campaign, which AL-BA'TH embraced to stop the ruin of olive trees in Tartus.

AL-BA'TH on 4 August 1977, confirmed alarming information which specialists have validated that the location chosen for the cement factory in Tartus was absolutely unsuitable and that the olive trees which have been and will be cut down have increased by some 20,000. In addition to that, the factory's exhaust fumes will gradually lead to the destruction of about 250,000 olive trees, not to mention the other seasonal crops. The material loss, in this event, is estimated at approximately 50 million Syrian lira annually in national revenue. This is in addition to a loss of four million lira a year from the cut-down trees--20,000 trees. If we consider the age of an olive tree, which average some 400 years, compared with the lifetime of the factory itself, about 50 years, with an income of not more than 150 million Syrian lira a year during its lifetime, our result through simple calculations is that the factory's total national income throughout its operating life could be realized from the olive trees'yield in only 125 years.

The factory will produce 6400 tons of cement a day; this requires a daily supply of 10,000 tons of calcic and basaltic rock for raw materials. The stone quarries for these raw materials are situated in the midst of a group of the most beautiful villages on the coast, and its tourist areas--Husayn al-Bahr, al-Suda, Ba'shatir, by the coast, Duwayratak, whose inhabitants fluctuate between 25,000-30,000 persons. As a result of the huge explosions



of rock, in order to supply the factory's daily requirement, the inhabitants will be forced to leave and abandon their villages.

The area of these quarries is filled with olive trees which will lead to their destruction. AL-BA'TH referred to the fact that the costs of transporting the raw materials, whose quarries are located four km away, will be extremely expensive, that the raw materials, which it was agreed would be used, are of dubious suitability in terms of sufficiency, and that the study of estimated production costs has not been completed because of larger and uneconomical figures. It was also reported that a line to transport the raw materials would cost 100 million Syrian lira, which could have been saved if the factory had been built in a suitable location. AL-BA'TH explained the position of several official and private organizations objecting to the factory's location, including the ministers of tourism and communications, the head of the Farmers Union, and the ministry of housing.

Unfortunately, no action was taken to remedy the negative aspects raised by AL-BA'TH, and the continuation of the factory in its location was insisted upon. The issue of the quarries' dust was also raised, since it would affect the trees of the surrounding areas by filling the pores of their leaves and preventing exudation, evaporation, respiration, and photosynthesis, which would lead to these trees' slow death in the future. Furthermore, the question of manning the factory and its productive use, which will require about 2000 workers including not less than 60 engineers and double that number of technical assistants, was raised. In general, the factory is a strange and alien body in the area.

But what is the justification for raising the problem again?

We shall answer this during our open interview--environmental pollution and especially air pollution--which we conducted with Dr (Eng) Marwan al-Saqqal, chief of the Office of Research in the directorate general of meteorology, who has spent more than a year in the factory area to study the pollution emanating from the factory. As a result, he has presented a group of results and proposals. For what purpose was this done? What is the importance and seriousness of these field experiments? This is what we shall learn in the course of our interview, along with the aspects of pollution.

Perhaps it would be beneficial, before beginning our interview, for us to review generally the facts of environmental pollution. Human history has never seen such disruption in the human being's relationship with his environment as is happening at the present time. The harmony which was distinguished by the relationship between human beings and their environment, and the critical balance by which this relationship was characterized for a long time, have begun to be subjected to deterioration. This environmental decay has begun to grow with unusual rapidity, inducing environmental scientists to direct warnings against continuing to allow this constant and unrestrained deterioration.



Health conditions in many of man's environments, especially large cities, make them no longer fit for human habitation. There are millions of people living in dwellings without the necessary health standards for their lives, and it is apparent that the days in which man could enjoy a clean life and pleasant air are measured on their way to extinction. Pollution is the product of numerous factors, the most important of which are population growth and overcrowdedness, and rising industrial production with its millions of tons of hard, liquid or gaseous wastes, a most important environmental problem. Air pollution is considered a pressing problem and has begun to attract attention to its direct effect on bad health conditions in areas of concentrated industry and overcrowded means of transportation. The more that factories and number of automobiles increase in cities, the more the probability of health hazards to man increase.

#### Concern for the Problem

The event to which the American city of Durona [sic], Pennsylvania, was exposed is considered the first indication of danger, and called rapid attention to the problem of air pollution. In 1948, the city with a population of about 12,000 was exposed to serious air pollution. That occurred because the smoke of factories in the area, especially the wire factory in the city, became confined as a result of a descending warm air current which trapped cold air beneath.

The city air filled with smoke and poisonous oxides, and as a result, approximately 6000 persons were stricken with various ailments. Despite rapid treatment for the stricken, 20 persons died as a result of the polluted and suffocating atmosphere. It is believed that a large percentage of those who survived continued to suffer from certain ailments connected with that incident. Another city was subjected to a similar incident; in 1952 the advance of a layer of warm air and its blocking of a mass of cold air led to an increase in the percentage of sulphur oxide in the atmosphere over London. The confinement of factory smoke resulted in a concentration of fog in the city, impairing vision to a considerable degree. It is said that not less than 4000 persons met their death either directly or indirectly as a result of air pollution.

As for sources of pollution, we can say that there are two main sources of air pollution.

The first source is corrosion. Millions of automobile tires annually leave thousands of tons of small molecules suspended in the atmosphere. Some industries, such as building materials and mining materials, as well as excavation and explosions, share in increasing the percentage of this matter in the atmosphere.

The second source is combustion. The turning of various materials leads to gases and smoke which the atmosphere absorbs. These gases are changed into new chemical compounds, because they unite with oxygen, vaporized water and other elements.

## The Dangers of Environmental Pollution

There is a widespread saying that man has begun to suffer from the illnesses of civilisation, those illnesses which are the result of man himself. Air pollution, for instance, is a direct result of man's civilized development, especially industrial development. Air pollution causes increased pathological symptoms of various kinds--headaches, poor vision, gastric disorders, and cancer symptoms. Children and the elderly, more than man, are considered subject to illnesses connected with air pollution. It was noted that some illnesses, such as pneumonia and pulmonic emphysema, increase considerably in air polluted climates, as well as some other diseases.

Despite the increasing gravity of the danger of pollution at the present time, the greatest danger still lies in the years to come. The parameters of that danger depend upon man's ability to place restraints on the runaway spread of pollution. The future of man's environment greatly depends on increasing a healthful environment, by maintaining the air's purity and by making an atmosphere available in which man can breathe clean air and enjoy sufficient quantities of sunshine.

The main solution lies in man's ability to control the means of production, especially industrial, as well as in exercising judgement in numbers of automobiles, reducing overpopulation in cities, and in the consciousness of man himself.

[Question] What is your understanding of air pollution, and other types of pollution as well?

[Answer] It is increased alien matter in the natural air; its selectivity results from wind movement, and it has various effects on man, animals, plants and matter.

Environmental pollution consists of several types:

1. Air pollution, divided into pollution derived from chemical pollutants, such as sulphur oxide, and pollutants derived from hard molecules, such as dust.

Noise. The biggest ratios are well known, especially in regard to workers in factories, airports and some other occupations, as well as inhabitants of large cities.

2. Water pollution derived from petroleum products, brackish water, factory waste products, thermal pollution.

### Other Types of Pollution

1. Local, a tanning factory, cement factories, etc.

## 2. Foreign, following air and water currents.

[Question] Some believe that the problem of pollution is far from us, whereas the fact is that the problem indeed exists. What is the situation in our country with respect to the problem?

[Answer] In Japan, with a large population concentration and huge industries, man has reached the point of putting on a mask while travelling on public roads. He is forced to do that because of the high rate of pollution there.

This matter might be significant when judging our country.

Despite that, things are not that bad in our country, but the authorities concerned with our country have become concerned about the environment and its protection. That goes along with development and is in response to the danger which has begun to overtake us.

It is possible to say that the specter of pollution has begun to hang over the densely populated areas, Damascus, Aleppo, Homs. The most obvious center which might be mentioned is the Homs area, because of the presence of large polluting industrial projects; a refinery, sugar factories and fertilizer factories are some of the types.

[Question] After your field experiments at the site of the Tartus cement factory, what do you say to the hypotheses which led to selecting that location?

[Answer] I would like to refer to a basic point that what I did depends upon studies of pollution sources and then upon their distribution under various atmospheric conditions.

The goal of my study was to evaluate the truth of the hypotheses which led to the decision that there would be no adverse effect upon the area's inhabitants or crops around the factory from the gases or waste products. Naturally the hypotheses were dependent upon meteorological observations, in order to clarify the role of each of the air's elements which have a bearing on the pollution problem, and then to furnish evidence of the true bases which caused the decision to be made about the preferred height of the smokestacks.

The hypotheses were:

1. The ceiling of the thermal inversion layer would be a minimum of 100 meters over the land surface.
2. The prevailing wind direction is toward the southwest.
3. The land is level surface around the factory.

[Question] Could you define the atmospheric elements which enter into the spreading and scattering of air pollution?

[Answer] 1. Wind and disturbances is the first and most obvious factor. The umbrella of smoke spewing from some chimney will cause the air around it to move. Also the ratio of the breakup of pollutants increases with the increase of wind velocity, and consequently, if all other factors remain unchanged, the pollution concentration would be at some point in the wind current proportionately inverse with the speed of the air.

In any event, normal wind does not blow in a steady stream, but definitely blows to a limited degree in a restless fashion which spreads out the [smoke] umbrella.

2. Lack of vertical stability in the atmosphere. The warmth of the air diminishes slowly in normal conditions with altitude. As for the influence of surface thermal inversion, it can be seen when farmers fight against frost by means of smoke pots, since we observe that the smoke is confined within the layer of thermal inversion and delineates its upper surface.

3. The last atmospheric element which has a strong connection with the problem of pollution is an amount of heavy rain. The element of humidity is considered to be of considerable importance.

A foggy climate is extremely polluted. As an example of the injurious effect of such a climate, there was the situation in London, where foggy weather constantly contained a high proportion of secondary gas or sulphuric oxide for a period of 4 days, resulting in the death of 4000 persons and in illness to a great many more.

[Question] With regard to the Tartus cement factory, what about local factors affecting air pollution?

[Answer] As is well known, the area selected for the factory location is near the coastline, with the sea to the west and some hills to the east. The importance of this topographical distribution is in the creation of a local wind and its domination, under specific atmospheric conditions, of the air movement near the earth's surface. This local wind, which can arise in this area, especially during beautiful days, is the well-known sea-breeze, and it blows from the sea into shore as a result of the land's warmth during the morning relative to the sea. It can penetrate inland to a distance of several kms. In the condition where the general wind has a counter direction to this breeze, these two currents will collide at a specific distance from the coast, depending on the relative intensity of both of them. From that, an area of stagnation is created in which the approaching air is forced to rise to the top and return in the direction of the sea, where it meets a descending movement someplace over the sea.



Clearly, when a smokestack is located at a suitable height in the area, we find that any accumulation of pollutants will appear in the stagnant area. However, because of the rising air there, weak pollution will remain near the surface of the ground. As for the upper reaches, the umbrella will drift in the direction of the sea and partially rise. After it crosses the descending current a short distance from the coast, it returns by means of the sea breeze toward the land.

At night a reverse thermal distribution appears as a result of the land cooling and causing a comparable phenomenon to the sea breeze, except it is a land breeze.

As regards the atmospheric phenomenon produced by the hills, it is called a cataplectic wind. If there is a smokestack at the bottom of the hill, then any umbrella of smoke coming from it and heading toward the side of the hill will widen, because it will partially get caught in the cataplectic wind and return toward the base of the smokestack.

[Question] What about the goals desired from the field work done to locate the factory? Was it initiative or directed or what? What is the relationship of meteorologic observations to that?

[Answer] 1. We were asked as meteorologists to offer some advice concerning the height of the smokestacks for the cement factory to be built in Tartus, so that the pollutants concentrated in the areas adjoining this factory, could always be within specific and permissible limits.

Clearly advice such as this depends upon the previous points. Actions followed: Calculating the climatic recurrences in order to classify the different atmospheric stability factors, wind speed and direction, with regard to learning the percentage of pollution, as well as requiring an observation post established at the site itself. It was not available, and the need to provide one was confirmed.

2. Thermal measurements: Temperatures on the vertical plane were measured to distances of about 15 meters, starting from sea level, up to a height of approximately 35 meters, using a balloon.

3. Wind measurements: Wind speed and direction were measured using a hand wind-gauge. It was clear that these values would not accurately measure the wind at the mouth of the smokestack.

4. By way of obtaining additional observations and statistics regarding the influence of topographical undulations and local circulations on the behavior of the moving smoke umbrella, a test depicting the release of gases from the smokestack under selected circumstances was carried out. An open smoke source was set up at a specific height, and the behavior of the released smoke was studied.



Humidity measurements near the ground surface were also taken.

[Question] What about the analysis of the information acquired during the experiments?

[Answer] Four or six thermal shots were made each day, when atmospheric conditions permitted. Information was gathered for a period of 7 months which nearly covers the four seasons. Nevertheless, the information gathered was insufficient to carry out a pollution study in the true climatological sense, since that would require several years. Accordingly, the program which was followed to achieve the best results was to classify the different vertical distributions of temperature, which we had obtained during the study, according to their general characteristics, such as height and intensity of the thermal inversion and its general changes along with the times of day.. This led us to the fact that the summer thermal inversions were less intense than those of winter.

This was also true regarding the analysis of the wind information.

Thermal inversions are in areas where vertical distribution of heat is contrary to natural distribution in that cold air is the lowest and warm air is at the top.

[Question] After the analysis of that information, what conclusions and debate occurred?

[Answer] It must be borne in mind that, in order to prevent the occurrence of injurious air pollution in the adjoining areas, with regard to the problem of determining the ideal height for the smokestacks, the precise analysis of the thermal inversions' characteristics determined conclusively that this height must be a minimum of 150 meters.

As regards the dust and its dispersion, because of the existence of the phenomenon of particles from the umbrella rising or falling and being retained or not on the ground surface, it is believed that the quantity of dust released from a cement factory in all its departments has been estimated at approximately four to five percent of the weight of the cement produced.

Before the second world war, this figure was six to eight percent. This is without using any filters. It is known that the Tartus cement factory's production capacity is 6000 tons daily, and that the quantity of dust released from the smokestacks is 1.65 kg/sa.

[Question] What can these conclusions offer to the area's inhabitants and to the production of the factory itself?

[Answer] On the other hand, it is possible to benefit from this knowledge in determining those areas more or less exposed to pollution than others,

no matter the concentration of pollutants found. It became obvious to us during analysis of surface winds in the area that we had discovered two basic systems for wind distribution during the winter and summer seasons. The division of areas around the factory is considered very limited when trying to build a housing complex nearby, such as housing areas for workers or for summer vacationing and tourism. The reason for that is that we can make a sound and preferable selection.

With regard to the subject of housing complexes, we think that the best area is located north of northwest of the area. As regards summer vacationing, we believe, concerning summer distribution, that the coastal areas north and south of the factory remain suitable for vacationing despite the presence of the factory between the two areas. We feel the inland areas, especially northeast of the factory, are becoming less suitable for vacationing.

This information can also be useful to give an idea about the concentration of pollutants, under most atmospheric conditions, which persist around the factory and to compare that with permissible world levels of various pollutants and, consequently, to determine the efficiency required for filters which must be installed to reduce the amount of dust falling out into the atmosphere.

[Question] At the conclusion of your tests and studies, how did you summarize the location of the Tartus cement factory?

[Answer] The cement factory's smokestacks must be at a height of 150 meters; at the time the stipulated height was 90 meters.

A second point and as a fundamental position:

The disadvantages and dangers which were caused by establishing the factory resulted from neglecting two main principles for establishing any industrial or housing complex. They are:

1. The developing and flourishing of industry must not affect, either closely or from afar, the agricultural life in existence or be done at its expense or be incompatible with its progress.
2. A factory that is compatible with the prevailing climatic characteristics is more convenient and less costly by far than a factory which is the opposite.

All this effort could have been dispensed with if the factory had been built inland with a railroad line established to transport its products, i.e., the material for export. As meteorologists we must be consulted before the decision on a place for a project.

[Question] The measurement of success of any results is subject to the extent of their implementation and the benefit derived from them. Have those results regarding the height of the smokestacks and other matters been accepted?

[Answer] A specialized and broadbased committee, which included several of the parties concerned, was formed. That committee, after visiting the area, submitted a detailed report to the responsible authorities containing several of those results which had been reached. It recommended the need for the smokestacks to be 150 meters high, and for filters to be installed with a 95 percent capacity. Note that one of the committee members pointed out the need for not completing the factory, no matter what the costs paid out since 1977.

Another viewpoint which surfaced in the committee was that so long as there were losses, prudent measures must be applied. In any event, and from the viewpoint of meteorologists, the selected factory site is unsuitable for the cement factory, in such a beautiful area. In addition to that, there are factors pertaining to the raw materials and the consequences for the children, the inhabitants, the land, and . . .

The painful truth is that a short while ago, when I went by the factory, I found that the height of the smokestacks is not the height we agreed to!

[Question] What can we deduce from this interview of ours?

[Answer] As of now, we must apply prudent precautions concerning the protection of the environment, so that we do not have to face difficult, hard-to-solve problems. Undoubtedly, the ratio of air pollution is higher in Damascus, Homs, and Aleppo, and immediate actions must be taken to put an end to that pollution. We as meteorologists are capable of giving advice at the stage of studying the project's location.

The sources of the basic air pollutants in Damascus are automobiles, heat generation, and factories. The smog cover hovering over Damascus is the beginning of the real danger which we must decisively and seriously confront.

The smoke pouring out of automobile exhausts is a primary source of air pollution. There must be air purification equipment in factory smokestacks, and also suitable exhausts for automobile engines must be designed in such a way as to have complete combustion.

Solutions broached to deal with pollution's causes include regional planning at all levels, purifying fuels of sulphur, purifying gases in industry by special equipment before their release from the smokestacks, raising the smokestacks, shifting factories to suitable non-populated areas, reorganizing cities in a way that allows air circulation, reforestation and many more gardens, and equipping autos with filters.

Pollution has touched village and city; the protection of the environment is society's responsibility, and one of the first of its requisite duties is to protect man and his health.

Several of the world's nations are selling a liter of gasoline for as much as a liter of heavy oil. There are several laws applied to persons and machines.

An observation: Our interview has dealt with some of the secondary aspects, but we have been content with this. Next time we should deal with what remains.

Finally, several nations have been able to control cement factory smoke, in addition to the smoke from other industries. That is the dust-covered devil. Do you think our national cadre is doing the right thing, as these studies cost thousands of lira?

7005

CSO: 5000

## INTER-AFRICAN AFFAIRS

### CONFERENCE CITES WATER, DEVELOPMENT NEEDS

Paris DEMAIN L'AFRIQUE in French 25 Feb 80 pp 49-62

[Excerpt] As Africa's water suppliers gathered in Abidjan, Ivory Coast, their first conference sounded a note of alarm: 70 percent of Africa's people have no regular access to water supplies.

From Monday through Friday, 4 to 8 February 1980, the first African conference of water suppliers met in Abidjan, sponsored by Ivory Coast President Houphouet-Boigny and chaired by Mr Desire Boni, Ivorian minister for public transportation, construction, and city planning. The conference is part of the International Water Decade (1980-1990), and brought together representatives of African nations interested in pooling their efforts and resources.

Attending were representatives of 25 African countries, delegates from the major international organizations -- political, economic, social, and financial -- (WHO, UNDP, African Development Bank, World Bank, BDEAO), many directors of African water distribution utilities and industry spokesmen interested in Africa's economic development.

Water has always been a vital problem for man. It is as crucial to his existence as the air he breathes. Without water, all life -- man included -- would vanish. And yet, in our environment, it is something we take for granted, a cheap and ubiquitous raw material. Appearances are deceiving, though: while our planet has water in abundance -- enough to cover some 1,500 million square kilometers of the globe -- only 3 percent of that water is drinkable and hence directly suitable for human use. In the rural areas of the Third World, where most of mankind lives, water is a problem that arises every day and is



viewed as a difficult, not to say frightening one: water to drink, water for domestic animals, water to wash in, and water for crops. Not to mention the enormous requirements of the smallest effort at industrialization. Because a steady and reliable supply of water is vital to all growth and to any social progress, it cannot be allowed to depend on the whims of nature. All too often, the peoples of these areas are left to depend for their survival on rainfall, rivers and lakes, and wells, if there are any. Only in rare cases have these fluctuating and unreliable natural resources been tamed to make them better meet the needs of human beings. Very few developing countries have even a minimal infrastructure of dams and reservoirs to serve the needs of every family on any consistent basis. Hence the cry of alarm that went out from Abidjan: "70 percent of Africa's people have no regular access to drinking water."

There is nothing new about this problem. And yet, it was not until 1976 and the Habitat Conference that the international community designated water as one of its top-priority goals. The United Nations Conference on Water, which met from 14 to 25 March 1977 at Mar del Plata, ratified the goal spelled out the previous year at the Habitat Conference: to provide, by 1990, a supply of drinking water of good quality and an adequate sanitation system for every person on earth. In his closing remarks to the conference, its secretary-general, Dr Mageed, declared that it "has given rise to a new awareness of the dimensions of the water problem; it has enabled us, once again, to realize the need for joining together for action, and has aroused the feeling of a renewed commitment." The Conference chairman, Mr Luis Urbano Jauregui (Argentina), concluded: "We have helped to awaken the international community to a new reality insofar as water is concerned: water is the heritage of all mankind."

Now a look at the dimensions of what is at stake, according to figures cited by Conference Chairman Yahia Abdel Mageed; to provide adequate urban water supplies, we must at least double our earlier investments; as for the rural areas, investments there must be quadrupled. It will take \$150 billion from 1980 to 1990 to solve the water problem: some \$9 billion every year. As for irrigation, we must increase the area under irrigation by 22 million hectares; increase the productivity of the 45 million hectares already under irrigation; improve drainage of some 80 million hectares; and reach 100 million hectares in order to achieve our food production goals. Should the sum of \$150 billion look somewhat formidable, it dwindles to insignificance when set against the world's expenditures on weapons.

Estimates tell us that 80 percent of the world's rural populations lack water in the quality and quantity they need. Further, the world's population is steadily growing, whereas water resources

are not merely finite, but roughly stable. Water is one of the vital factors in development, and development is expected to aim at ever-increasing satisfaction of the basic needs of the inhabitants of the planet. And here is where we are in danger of getting trapped in a vicious circle: all the experts agree that demographic growth will stabilize in the developing countries once the people in those countries have achieved a decent level insofar as their primary needs -- food and health -- are concerned. Well, water, or the lack of it, is the principal obstacle to the development of food crops and in fact to development of any kind.

This gives us some idea of the size of the planetary stakes on the conference table at Mar del Plata. Farm production will increase spectacularly if the water supply is steady and adequate, while farming methods are improved. According to estimates cited in a study conducted by the International Food Policy Research Institute (USA), the developing countries must increase their production of food grains by at least 4.25 percent per year beginning in 1976, simply to ward off a grave food shortage in 1985. The recent rate of increase in grain production in these countries was only 1.7 percent per year from 1967 to 1974 -- only half what is needed to stave off the crisis predicted for 1985, and the mean growth rate over the past 15 years has been only 2.5 percent. Hence the need for developing water resources to increase food crops: with better organized irrigation and better management of their water potential, in the vast majority of cases, the 4.25-percent growth barrier can be crossed with ease.

More than half the water-supply engineering installations in the Third World need improvement. It isn't the megaprojects, the colossal dams that yield the greatest advantages. Small and medium-scale irrigation projects have an inherent flexibility to adaptation that makes them profitable at less cost. Merely maintaining ditches and digging small reservoirs provides substantial increases in yield. To cite only two examples: international experts found, in the course of an inspection tour of Ethiopia, that half the hand-operated pumps were broken. In Lesotho, despite the very special attention its Rural Development Ministry devotes to water supply problems, at least one in every three water supply systems was out of commission. Africa is not the only one concerned. Estimates show that in India 20,000 hand-operated pumps are inoperable. In fact, as Dr Alexander Cairncross and Dr Richard Feachem estimate, "the number of water supply systems breaking down is just about equal to the number of new ones on which work is started."

One might well conclude that you have to keep running just to stay where you are. Think about that a minute. It shows that

maintaining water supply systems is every bit as important as building them. The rate at which systems are built in rural areas is meaningless, in and of itself. What good is it to have water supply systems shown and numbered on paper, but not working out in the fields? If you bring in faucets, you have to bring water out of them when the tap is turned. What happens most often, though, is that the government and the aid donors tend to duck out of the chore of maintaining the water supply system they have paid for, and leave that problem for the rural community itself to cope with. And that, according to all the experts, makes no sense at all. Construction and maintenance must go hand in hand.

If they don't, the whole undertaking becomes the bottomless vat the Danaides were damned to keep filling forever in Hades.

The possibilities of water utilization and its multiple uses for varying purposes will of course depend on its natural quality. But use itself affects the qualities of the water. There is qualitative, as well as quantitative water management. Water unfit for drinking, polluted water, is synonymous with disease and malnutrition. A sick man is a weakened man, a man who produces little, or who no longer produces anything. A man who is a burden to the community. We need only remember that the human body is 70 percent water, and we get some idea of the overriding importance of this precious fluid to human health.

Yet the degradation of the intrinsic qualities of water is steadily worsening, in the privileged countries as well as in the developing ones. Streams, rivers, and lakes are little by little transformed into garbage dumps, into open sewers. Filth, of human or animal origin, and even more seriously, industrial chemical wastes, highly toxic materials such as lead or mercury [are dumped or leached into the waters]. All too often, the lack of facilities for water treatment forces local populations to use heavily polluted water.

According to WHO estimates, two thirds of the population of Third World countries have access only to polluted water for their household consumption. A great many pathogens dangerous to human health are carried by water. The situation is even graver in the rural areas, where systems for waste removal, including human feces, are altogether inadequate even where they do exist. This situation sets up ideal conditions for the growth and spread of intestinal diseases and parasitic diseases.

Malaria is endemic throughout tropical Africa. In the whole of Africa, 12.6 percent of the continent's sick and invalid population suffers from malaria. Every year a million children under 14 die of this one disease.



Bilharzia is another disease linked with water pollution. It is endemic in Africa, the Middle East, and the Caribbean. The number of people afflicted with it worldwide is estimated at more than 200 million.

Filiariasis, particularly Bancroft's filariasis, takes a hideous toll of the human body: elephantiasis in the legs; hydrocele in the testes... This disease afflicts 250 million people all over the world.

Hairworm claims 10 million victims. Oncherosis, or river-blindness, is rampant in the Volta basin and endemic in West Africa. In some villages as many as 50 percent of the adults are blind.

Trypanosomiasis is also directly related to water and to aquatic ecosystems. And, among all the rest of the diseases, let's not forget malnutrition, which stems from a lack of food, which in turn is linked to the water supply and to irrigation. We see that water is at the very heart of life, and that it determines whether man is sick or well.

In the dawn of recorded history, more than 5,000 years ago, the first civilizations to emerge were called "hydraulic civilizations." They sprang up along the banks of the nourishing rivers, around constantly improved irrigation systems. The availability of a water supply governed the location of human habitation for thousands of years.

Water and its manifold uses -- for domestic needs, for public needs, for industry, for agriculture, for fish-farming, for navigation, for generating electricity -- water has always been a symbol of life. In our day, when satellites and astronauts explore the solar system seeking forms of life on other planets, the key sign they seek pointing to the possibility of life is still water. There is no water on the moon, so there is no life on the moon, either. But here on earth, on the contrary, areas that once were fertile and lavishly irrigated have followed the backward road to desertification.

Climatic changes can be blamed for some of this, but so can man's improvidence. As he contemplates this advance of the desert, synonymous with death, with non-life, man may well wonder what is to become of him when the nourishing matrix of his world, water, is gone.

Watching the Sahel wither under the pitiless scourge of drought has shown us what the end of the world may look like. That region, bordered mainly by Mauritania, Senegal, Mali, Upper Volta, Niger, and Chad, covers an area of 5 million square kilometers and has more than 26 million inhabitants. After the terrible drought from 1968 to 1974, which caused suffering and devastation

we all still recall, the irregularity of rainfall still holds the threat of renewed disaster.

The frightful consequences of those years of drought triggered a pang of conscience in the international community, and a refusal to accept the tragedy of Sahel as inevitable. Right then a multinational committee to fight the Sahel drought (CILSS) was set up, and it includes all the Sahel countries. "God helps those who help themselves!"

Then, in March 1976, the Friends of Sahel Club was founded, in which representatives of the member nations of the CILSS and of the countries and organizations ready to offer their cooperation (France, Canada, The Netherlands, Switzerland, Austria, the United States, the United Kingdom, Belgium, the OECD, IBRD, and EEC among them), joined in a concerted effort. The idea was to work out a program that would, in the middle term, bring the whole region back to self-sufficiency in food production, with practical and specific goals: quintuple rice production, at least double grain production, and start harnessing the Niger, Senegal, and Shari rivers.

Prior to 1968, the Sahel used to produce, on the average: in dry crops, 5 million tons of grain a year; 500,000 tons of irrigated crops, and 530,000 tons of meat, of which about a fifth was exported. In the year 2000, according to estimates from the French Central Company for Territorial Equipment (SCET) and Industrial Development Studies Company (SEDES), Sahel should be consuming 8 million tons of dry-crop cereals; 500,000 tons of irrigated crops, and 1.2 million tons of meat. FAO experts, like the SCET/SEDES people, think that Sahel could achieve self-sufficiency in food in less than 15 years. Cost of the operation: close to \$8 billion. But to do it, the water problem must be solved.

In a rural environment, water consumption per capita varies greatly from one region to another. It is a function of the difficulty of obtaining it, for one thing. It ranges from a minimum of 10 liters to a maximum of 50 liters, with the average something like 30 liters per person per day. In small towns, that figure may reach 70 to 100 liters per day. Quick calculation, allowing for the present population and its geographical distribution, gives us a total annual consumption of around 500 million cubic meters. By the year 2000, Sahel's population will be close to 42 million. Mean consumption will rise somewhat. If we factor in consumption by industry, Sahel will be using around 2 billion cubic meters of water per year in the year 2000.

Livestock, taken all together, will use 450 million cubic meters. Irrigated crops will require 21 billion cubic meters.



These studies, done by the Friends of Sahel Club, enable us to reckon in orders of magnitude.

According to the following table, we can take as quite plausible the quadrupling of water requirements for Sahel this side of the year 2000 horizon. Now we must evaluate the resources to see if

	1977 needs (in millions of m <sup>3</sup> )	2000 needs	Multi- plier
Population and industry	500	2,000	4
Livestock	350	450	1.3
Irrigated crops	5,000	21,000	4.2
TOTAL:	5.850	23,450	4

they are adequate to cover these requirements within the planned horizon.

We know about the Sahel's underground water tables. Careful studies have mapped them for us. The Office of Geological and Mineral Research (BRGM) has put together a synthesis of all hydrogeological work done on the Sahel to date. We can see from this document that there are aquifers everywhere.

The total exploitable reserves amount to between 1,000 and 1,500 billion cubic meters. The maximum possible annual withdrawal without disturbing the balance of the aquifers is on the order of 55 billion cubic meters for all six countries making up the Sahel.

As for surface waters, the great Sahelian rivers are the primary sources: their annual mean total is 135 billion cubic meters or so, of which:

- 22 million come from the Senegal
- 67 million come from the Niger and the Bani
- 46 million come from the Shari and the Logone.

The other streams and rivers contribute fairly large annual flows: a billion cubic meters for the White Volta at Bagré, 1.4 billion cubic meters for the Black Volta at Boromo, etc. In all, they offer some 15 billion cubic meters. Added to the 135 billion cubic meters from the three largest rivers mentioned, the Sahel has, theoretically, 150 billion cubic meters of surface water.

If we compare the figures for water requirements on the 2000 horizon with available resources, we get the following table (in millions of cubic meters):

Requirements in 2000			Resources
Underground waters	Population	2,000	55,000
	Livestock	450	
	Total	2,450	
Surface waters	Irrigation	21,000	150,000 (annual mean)

It is quite clear that resources very comfortably cover requirements, and that there is no way in which there could be any shortage or even any constraint despite the vagaries of the climate.

Theoretically, the Sahel could be saved. The experts know it. And for some time now this rescue operation has been on the way to becoming a reality: work has finally started, after 15 years of trials and tribulations and hopes deferred, on harnessing the Senegal River. The first stone for the Diama dam in Senegal, at the river's mouth, has been laid. With the Mali dam at Manantali completed some time in the future, the two kingposts of the great work will be in readiness.

The Senegal River Development Organization (OMVS) has already moved into its operational phase. Its essential aims: to call a halt to the fragility and vulnerability of the riverine economies, continuously scourged by unpredictable quirks in the climate, and achieve an equilibrium between the river population and its environment.

Away back in 1963, Mali, Senegal, Mauritania, and Guinea set up the Intergovernmental Riverine Committee on the Senegal River. In 1968, the committee became the Organization of Riverine States of the Senegal River (but without Guinea), and took its present form as the OMVS on 11 March 1972. In the minds of its founders, the organization was "to mount the first frontal, effective, global, and systematic attack on the Sahel problem."

But does it lie within the capabilities of the three member nations -- Mali, Senegal, and Mauritania -- to bring this vast program to fruition? According to forecasts, it will take some 40 years to complete construction work. Estimates of its costs have risen from \$500 million in 1974 to \$1 billion today, \$800 million of which will go just to complete two dams, which are its primary infrastructure: the Diama and the Manantali dams. Quite clearly, these key projects will involve building secondary installations such as bridges, ports, etc., and some work on the river channel

to make it permanently navigable. Hydroelectric power has not, of course, been overlooked either. The Manantali dam alone is expected to produce 800 million kwh of electricity.

Work on both dams is financed through loans from such organizations as the World Bank, the European Development Fund, the African Development Bank, and by such aid donor countries as France, the United States, the Federal Republic of Germany, and the Gulf Emirates. The three Sahel members of the OMVS are about to move into a phase of practical cooperation, which may well prove both an example and a very attractive model for the rest of the African continent.

The second third of this gigantic project will of course center on rural development. The two dams combined will provide irrigation water for almost 500,000 hectares capable of yielding two or even three crops per year. That alone can change the Sahel from a food-dependent region to a grain exporting one.

The third portion will have to do with industry: exploitation of the iron and phosphate deposits already explored on both sides of the Senegal-Mali border, as well as deposits of other minerals including copper, gold, and bauxite.

The OMVS offers a carefully designed project firmly based on the search for integrated and balanced development for agriculture, industry, and transportation.

We know that the nerve-center of modern economies is energy. From any perspective on the human scale one certainty emerges: the price of oil is going to continue inexorably to climb, until the last drop of oil is gone. The countries which do not produce it, and especially the developing African states, will be penalized by these price hikes, to the point where their chances for any sort of economic progress will be jeopardized. They must absolutely find other energy sources, and among those hydroelectric power, for which the African continent has tremendous untapped potential, must come first.

At the World Energy Conference (19-23 September 1977) it was shown, with full documentation, that Africa alone possesses 20 percent of the world's hydroelectric potential: 1,800 billion kwh of the 9,000 billion global total. Zaire alone could produce close to 500 billion kwh per year (1, percent of the world potential).

Africa does not lack for mighty rivers: we need cite only a few -- the Congo, the Nile, the Kwanza, the Niger, the Shire, the Senegal, the Limpopo, and the Zambesi -- there are many more. We are aware of the impact the rational development of such a potential could have on development. Reckoned on a per capita

basis, the African mean in hydroelectric potential is three times the world mean. Hence the importance to Africa of real understanding and control of its waters. The OMVS example speaks for itself. It will transform the whole of the Sahel region, responding, in the process, to several simultaneous imperatives. The dams will obviously provide electricity. But at the same time they will improve and stabilize the river beds, transforming them into avenues of traffic and transport. They will also, and most important of all, make it possible to irrigate thousands of farms which will be returned to agricultural production.

Another, and by no means the least, aspect of the problem is this: the great African rivers flow through several states. In some places, they are boundaries. Improving, harnessing, and developing them will require the cooperation of all the riverine states. The Abidjan Conference is an illustration of this. The paths to unity run through mastery of the water, and water lies at the very heart of Africa's destiny.

6182

CSO: 5000



## FOOD, CLOTHING DISTRIBUTED TO DROUGHT-AFFECTED PEOPLE

Addis Ababa THE ETHIOPIAN HERALD in English 18 Mar 80 p 3

[Text] **ADDIS ABABA (ENA)** — The Relief and Rehabilitation Commission (RRC) is distributing grains, powdered milk, high protein food and clothings to people in three districts of Sidamo region who are affected by the drought prevailing in that part of the country.

The RRC has announced that the provinces of Borena, Jemjem and Arero have been hit by serious drought this year as a result of absence of rains during the farming seasons.

The Commission has allotted ten quintals of grains, two quintals of powdered milk and nutritious food as well as clothing for distribution to the inhabitants of the three provinces which are seriously hit by drought. The district of Jere in Arero is the most affected, according to RRC.

A tanker is transporting water to the dry areas while medical treatment is being given to the people with the co-operation of the Ministry of Health.

The provinces of Arero and Borena and parts of Jemjem province in Sidamo region are facing serious drought

due to the failure of the big rains last year and again the small rains this year.

The seriously affected areas are within Borena and Arero provinces, bordering with northern Kenya where emaciated cattle, sheep, goats and camels are being driven for days in search of grazing and water. All the rivers and some of the water wells in the areas have dried up, including the Dawa River in Borena province. The Jemjem province, with the exception of the highland areas, has also been affected by drought. Some people have also started dying in these areas where the situation is no less serious than the Wollo drought, the RRC said.

An RRC team has been sent this week to the three provinces to assess relief aid to the people in the drought-affected areas. Close to 8,000 cattle had perished for lack of water in the areas between Magado and Diku water well, according to preliminary surveys made last week, the RRC said.

The worst affected areas are Dire district in Arero province and parts of Tefele district bordering with northern Kenya.

The drought in the areas south and south western parts of the town of Mega were also to have affected northern Kenya and the north-eastern part of Uganda.



## BRIEFS

**EARTHQUAKE IN NAKHICHEVAN ASSR**—Baku, 25 March—An earthquake was recorded on the territory of the Nakhichevanskaya ASSR at 0657 hours Moscow time today. The epicenter was located in Iran. According to the "Nakhichevan" seismological station the force of the underground tremors in various regions of the autonomous republic was equal to 3-4 points on the 12-point scale. The earthquake did not cause any significant damage and nobody was hurt. [Text] [LD271359 Moscow PRAVDA in Russian 26 Mar 80 p 6 LD]

**EARTHQUAKE IN SOUTH KIRGIZIYA**—An earthquake of force 4-5 at its epicenter took place in south Kirgizia on 11 March at 0730 GMT time. The Kirgiz SSR Academy of Sciences Institute of Seismology reported that the earthquake's focus was on the northern slope of the Kokirimtod range, 65 km southeast of the rayon center of Toktogul. In the village of Kyzyl-Ozgorush the underground tremor was force 4 while in Toktogul it was 3-4, and in Tash-Kumyr, Mayli-Say and the settlement of Min-Kush it was force 3. There are no casualties or damage. [Text] [LD280923 Frunze SOVETSKAYA KIRGIZIYA in Russian 13 Mar 80 p 4 LD]

**ANTICYCLONE DOWNS LENINGRAD POWER LINES**—The working people of Volosovskiy Rayon in Leningradskaya Oblast resisted the raging elements with fortitude and courage. A powerful anticyclone, passing over the Gulf of Finland and bursting onto the coastal territory, did not destroy the normal rhythm of life. By day it was warm and spring-like and the drip of melting snow could be heard, but in the evening a strong frost unexpectedly set in. Poles, posts and trees were covered in a thick coat of ice. Wires snapped under the weight and concrete posts collapsed. Big sovkhozes, forestry enterprises and many villages found themselves without electricity or telephone communications. The operations staff for combating natural disasters gave the alarm to the emergency teams of the Leningrad Regional Power Supply Administration. The anticyclone front advanced to a depth of more than 100 km, and the power workers did not have time to repair one break in the line before new reports of damage came in. The repair workers worked selflessly and were helped by sovkhoz teams. About 200 km of power transmission lines were put out of action by the anticyclone and hundreds of posts fell. Power workers from other rayons in the oblast and from Leningrad helped to combat the impact of the elements. The electricity supply to farms and settlements is now fully restored. [Text] [LD010715 Moscow IZVESTIYA in Russian 23 Mar 80 Morning Edition p 6 LD]

# TREE NURSERY DESCRIBES EFFORTS FOR GREENLAND FORESTATION

Godthab GRONLANDSPOSTEN in Danish 14 Feb 80 p 9

[Article by Jorgen Fleischer: "Perhaps Greenland Will Become a wooded Country Some Day"]

[Text] In southern Greenland, 70,000 trees of hardy types from Alaska and Siberia have been planted. They are doing well, and it looks as if the climate is getting warmer. On our tour of sheep-raising establishments, we also visited Greenland's only tree nursery. It is located in Upernaviarssuk at the same location as the sheep-breeding station, half an hour by water from K'akortok, and we found the head of the tree nursery, Poul Bjerger, there. He has been living in Upernaviarssuk for 27 years. He went there with Professor C.A. Jorgensen, of the agricultural college, in 1953. It was he who got the idea of a nursery for trees in Greenland. The first attempt to make Greenland a wooded country took place at that time, and in the course of the years Poul Bjerger has taken part in the planting of 70,000 trees.

Poul Bjerger grew up in K'akortok, where his father was the principal of a vocational school. He speaks Greenlandic like a native and is married to a native of Greenland. His wife who is the sister of the head of the government, had gone to town that morning to celebrate her father's birthday. Our host put things to drink on the table, and we got into a conversation.

There are two plantations of trees in southern Greenland: one in K'ingua near K'agssiarssuk, Erik den Rodes Brathalid, and the other down in Tasermiut Fjord near Kugssuak. At the former location, there are a few spruces which were planted by Professor Rosenvinge in the 1890's. Today they are 5 meters high. But larch trees from plantings in 1953 are taller than the old spruces. That is probably because of the fact that the old spruces come from Denmark and therefore grow very slowly in the climate of Greenland.

Near Kugssuak there are two quite large enclosures which are planted with pines from Alaska and larches from Siberia. They are raised from seed, under glass, in Upernaviarssuk. When they are ready to be transplanted,

they can be moved without misgiving to the locations where they will grow. But the soil at Kugssuak is very sandy, and last year some larch trees died because of drought, but Poul Bjerger believes that 75 percent of the trees which have been planted have survived successfully.

Time will tell whether timber can be obtained from the experimental trees. At present, the trunks are thick enough to be used for fence posts, and larches, in particular, are pre-eminently suitable for that purpose because they are very strong. But it will not be apparent until the next generation whether the experiment has been worth the trouble. If a protective screen of plants is obtained which have grown up over a period of many years and improved the soil, it will be a good thing to cultivate trees. The same thing took place in Denmark in the case of the experiment with mountain pines.

While we were on the subject of trees, Poul Bjerger remembered the small Siberian larch he gave me 18 years ago. Yes, it is still alive, and it is approximately a meter high now. But Nuuk does not have an ideal climate for raising trees, and we were in agreement on that.

#### Vegetables and Perennials

Experiments with trees take a long time, so it is nice to have something that grows a little faster, and that is vegetables and perennials, and it has turned out that a number of them can grow.

During the first few years, types of vegetables from Denmark were experimented with, both outdoors and under glass. The tree nursery recommended the types which have turned out to get along the best to the sheep raisers. But a few years ago they got into communication with a plant experimental station in Alaska, and last year they tried spring cabbage and cauliflower from the tree nursery. They grew fantastically well, and now they are anxious to find out whether the success will be repeated over the long term.

Outdoor strawberries, too--a sort of forest strawberry--do excellently well. Certainly there are not so very many berries and they do not become ripe until fall, but they taste very good.

Poul Bjerger has begun to send perennials to the coast, and he is eager to hear how they are doing. A good Greenland garden should face the south, be sheltered from the wind and have a covering of snow in the winter. Under those conditions, perennials should have a chance in most places if one gives them water and a little bit of fertilizer.

#### The Climate Is Becoming More Pleasant

And the climate is now on the way toward becoming more friendly to plants. Poul Bjerger can show that that is the case on the basis of meteorological observations which he has made and recorded over a period of 20 years. The annual average temperature in Upernavikssuk in the early 1960's was up to

plus 2.8°C, but in 1969 a steep drop in the temperature appeared which culminated in 1972, when the annual average temperature was minus 1.6°C.

Last year, the annual average temperature was plus 1.0°C, which is the same as the annual average for the preceding 19 years. Thus it appears that the temperature is on the way up again, but one cannot tell exactly.

Poul Bjerger points out a sjakker's nest. That is a migrant bird which was believed to have died out. Now they are beginning to be seen again. Perhaps that, too, is a sign of an improvement of the climate.

#### Better Weather Forecasts

As a meteorologist of long standing, Poul Bjerger is dissatisfied with the weather forecasts, which only hold good for the waters around Greenland. He is seeking local forecasts, which are very important for fishermen, sheep herders and Sunday hunters. He knows that Greenland Airline's meteorologists in Greenland prepare better forecasts, and it is annoying that one cannot get them when they obviously exist.

In his capacity as a member of the town council, Poul Bjerger has submitted requests to the Meteorological Institute, the television network and the Gronlands Radio organization for better weather forecasts, but he has actually only been put off with a lot of talk everywhere. However, he did learn that transmitting extra forecasts would cost about 100,000 kroner per year.

"It is almost one of our human rights to get regular weather forecasts," he says.

9266

CSO: 5000

CADMIUM, MERCURY FROM FISH, GAME HARMS GREENLANDERS

Copenhagen LAND OG FOLK in Danish 22 Feb 80 p 5

[Article by "RB": "Greenlanders Are Getting Heavy Metals in Their Blood From Seal and Whale Meat"]

[Text] The Greenlander population especially in seal hunting districts has a much larger quantity of heavy metals in its blood than is normal, and that is closely connected with what they eat: seal and whale meat.

"However, the amounts which have been found are below the level which can result in poisoning, but new investigations must be carried out to make sure that the quantities of mercury are not increasing because that can cause damage to unborn babies," the Committee for Scientific Investigations in Greenland states.

This is taking place while an analysis is being carried out for that committee by Dr Jens C. Hansen, a veterinarian who is an assistant professor at the Institute for Public Health of Aarhus University.

It is precisely the amount of cadmium contained in the bodies of fish and mammals from Greenland which has been the reason for an investigation as to whether the population is ingesting heavy metals in its food in quantities which exceed the limits set by the World Health Organization (WHO).

One hundred twenty Greenlanders from the Upernavik and Umanak sealer districts and the larger towns of Nuuk (Godthab) and Qaqortoq (Julianeab) have had their blood and hair investigated for heavy metal content and the results are being compared with tests performed on a control group of 25 Greenlanders in Denmark.

Where cadmium is concerned, it is apparent from the investigation that a connection between high concentrations in the diet and concentrations in the hair and blood has not been proved.

The quantities which are found come primarily from cigarette smoking, here as in other places, it appears.



The lead content in the blood is generally higher than that which was demonstrated in Denmark, but that may be connected with geological conditions because of the lead content of the subsoil of Greenland.

The committee states that it will be necessary to carry out further investigations to obtain more precise information on the sources of contamination and their consequences where the population of Greenland is concerned.

9266

CSO: 5000

FEDERAL REPUBLIC OF GERMANY

CONFERENCE HELD ON DANGERS OF ASBESTOS

Bonn VORWAERTS in German 13 Mar 80 p 20

[Article by Edeltraud Rimmel: "Long-Term Killer: Asbestos Causing More Deaths in Industry Than Any Other Substance"]

[Text] Last week the Main Association of Trade Unions sponsored a meeting of experts in Godesberg to discuss the topic of asbestos. There are 3,000 possible uses for this substance, and it is considered the sole or a contributing cause of many types of cancer.

The large room of the Godesberg city hall was filled to capacity: A meeting of occupational safety experts. To be more specific: The topic under discussion was asbestos, which in recent years has become the most widely discussed material from among cancer-causing substances. In the meantime, asbestos dust has become the number 1 job-related cause of cancer. It has been authenticated that asbestos fibers, when inhaled continuously, cause fatal types of cancer in the respiratory system or of the pleura and peritoneum. Investigations have come up with evidence that workers in the asbestos-processing or -producing industry are increasingly contracting cancer of the stomach and intestinal system.

For 2 days, doctors, scientists, labor unionists, industry representatives and trade unionists discussed the extent, the latest research results and, above all, the solution to the problem: occupational safety against labor-market policies.

The situation became cynical when, in a small circle, an industry representative compared asbestos-related deaths to traffic fatalities in an attempt to downplay a problem that, according to Reinhold Konstanty, representative of the German Labor Union Federation is the "long-term killer of our civilization": "A large number of approximately 25,000 annual cancer cases of respiratory organs are caused by asbestos, either solely or as a contributing factor. In most instances the fatal disease does not break out until 10 or 20 years later. At that time, however, it progresses rapidly and leads to death after a relatively short time."

On 11 January of this year, Klaus Hollenberg, a 42-year-old production supervisor, died in the Duisburg-Nord Evangelical Hospital. Diagnosis: cancer of the peritoneum. Klaus Hollenberg worked for almost 3 decades at the Tapp Company in Muehlheim, a relatively small enterprise that performs insulation and spray procedures on construction sites all over the world. The method releases enormous amounts of fine asbestos dust, and at the construction sites of Atuche (Argentina), Sostany (Yugoslavia) or Badalo (Spain) little was done to protect workers from the dangers of the invisible dust. After spending 19 years on insulation work and getting to know a number of countries in the world, Klaus Hollenberg began to experience breathing difficulties as early as 1971. The specialist's diagnosis: "Incipient asbestosis." During the next few years his condition worsened. The only concession, however, was a "20-percent reduction in his ability to work." The production supervisor filed a suit in the Social Court. A number of medical decisions followed in rapid succession. In the meantime, he celebrated his 25-year anniversary with the company. In the meantime, he saw his colleagues dying of asbestosis, of cancer of the peritoneum or pleura, or being retired prematurely. It could no longer be denied that there was a connection with the material of asbestos.

The trade association recognized the fact that these cases constituted "occupational diseases," and it had to pay damages. In 1978, Klaus Hollenberg's ability to work had been reduced by 40 percent, and the physician certified that it would be irresponsible to let him return to his job and he asked for retraining.

The production supervisor became warehouse administrator, and he worked a few more months. At the end of 1978 came his first lengthy hospital stay. In July 1979, he gave an interview on the television show "Monitor": "I am suffering from asbestosis, which means I have difficulty breathing, I have sharp pains in my chest, experience heart-rhythm irregularities, break out in sweat, and my temperature is permanently elevated."

Half a year later he was taken to the hospital for the last time. His abdomen was the size of a woman's in late pregnancy. He constantly gasped for air, and in spite of heavy medication there was no relief. Three days later, plagued with excruciating pains and examinations, the doctors determined for the first time that Klaus Hollenberg was suffering from cancer of the peritoneum. At that time, he had been under a doctor's care for as many as 9 years with practically no interruptions. A few days later, the 42-year-old production supervisor died.

His case is the 14th documented death in the Tapp Company that is a consequence of an asbestos disease. The company employs approximately 60 workers.

It is true, in October 1979 the dangerous asbestos spray procedure was banned by an ordinance of the FRG Ministry for Labor and Social Affairs. But for the long-time workers of the Tapp Company this regulation came much too late.

"When is the 15th case going to happen," is the question of Kurt Ledwan, shop steward of the Tapp Company, when addressing the listeners in the Godesberg city hall and after portraying the suffering of his colleague Hollenberg. He himself has contracted asbestosis as well. Medical opinion confirmed a 20-percent reduction in his ability to work. "If one looks at the statistics, according to which in 69 cases of asbestosis only an average of 7.8 years separate the first signs of the disease and the death of the person, then all I have left is a total of 18 months."

#### Rule of Thumb for Cancer Risk: Dose Multiplied by Time

The Godesberg meeting was initiated by the Employee's Bank in the Main Association of the Trade Union. And in recent years, especially labor unions have been instrumental in starting a campaign against the dangerous material of asbestos. Thus, the ban against the spray procedure was a result of labor union activities as well.

In the meantime, the German Labor Union Federation put together an entire catalog of suggestions that would reduce the risk of handling asbestos considerably. Nevertheless, resistance is great. The demand for substitutes, for instance, is meeting with protests from the powerful Asbestos Lobby. During the Asbestos Congress, which was sponsored last April by the International Metalworkers Union, the following conclusion was presented: "Today, the most widely-spread use of asbestos is asbestos cement, also called eternit. A comparable substitute was developed to be mixed with cement, but the companies are refusing to accept this substitute. The reason: They own shares in asbestos mines."

Labor unions want to add a regulation to the ordinance that is planned by the FRG ministry and which deals with hazardous materials. The unions are asking for a reduction in hours spent by workers at places that are especially hazardous to their health. Under consideration is a workweek of between 30 and 35 hours, depending on the degree of danger. The union argument certainly makes sense. "The rule of thumb for cancer risk is: Dose multiplied by time," said Reinhold Konstanty, occupational safety expert of the German Labor Union Federation. "It is imperative, therefore, that as long as we cannot prevent the total use of these substances, there must be a reduction in the time that the worker is exposed to this danger."

During the process of the discussion concerning the ordinance, the camps are again divided: Whereas representatives of the FRG Ministry for Labor and Social Affairs are supporting the German Labor Union Federation concept, representatives of industry and the Ministry of Economics are united in raising strong objections.

SELECTIVE LIST OF JPRS SERIAL REPORTS

WORLDWIDE SERIAL REPORTS

WORLDWIDE REPORT: Environmental Quality  
WORLDWIDE REPORT: Epidemiology  
WORLDWIDE REPORT: Law of the Sea  
WORLDWIDE REPORT: Nuclear Development and Proliferation  
WORLDWIDE REPORT: Telecommunications Policy, Research and Development



**END OF**

**FICHE**

**DATE FILMED**

1 May 1980

DD

